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December 13, 2010

**AGENDA ITEM 7b**

**TO: MEMBERS OF THE INVESTMENT COMMITTEE**

**I. SUBJECT:** Risk Management Quarterly Update

**II. PROGRAM:** Total Fund

**III. RECOMMENDATION:** Information

**IV. ANALYSIS:**

Introduction

The purpose of this item is to provide a quarterly report on Total Fund investment risk to the Investment Committee (the Committee). The format of this item is consistent with the previous quarterly update.

Recent Market Developments

Market volatility as measured by the Risk Management System (RMS) has continued to decline from the high levels of 2009 during the financial crisis. The RMS measure is a 12 month forecast based on a longer historical time series of price variations. However, capital market sentiment continues to shift regularly from "risk on" to "risk off" due to the re-emergence of sovereign credit crisis in peripheral Europe, currency issues, global imbalances and resulting economic instability. Risky assets rose in September following the Federal Reserve's announcement of the \$600 billion Treasury Purchase Program (quantitative easing). Risk aversion returned in November and gold hit new highs on fears of escalating sovereign risk in Europe and tightening measures were announced in China and other emerging market countries. Core inflation in the United States declined to historic lows while inflationary pressures are rising in Asia, particularly China. Economic and market risk remain heightened. Staff has decided to trim the equity overweight from 3% to 2%.

### Risk System

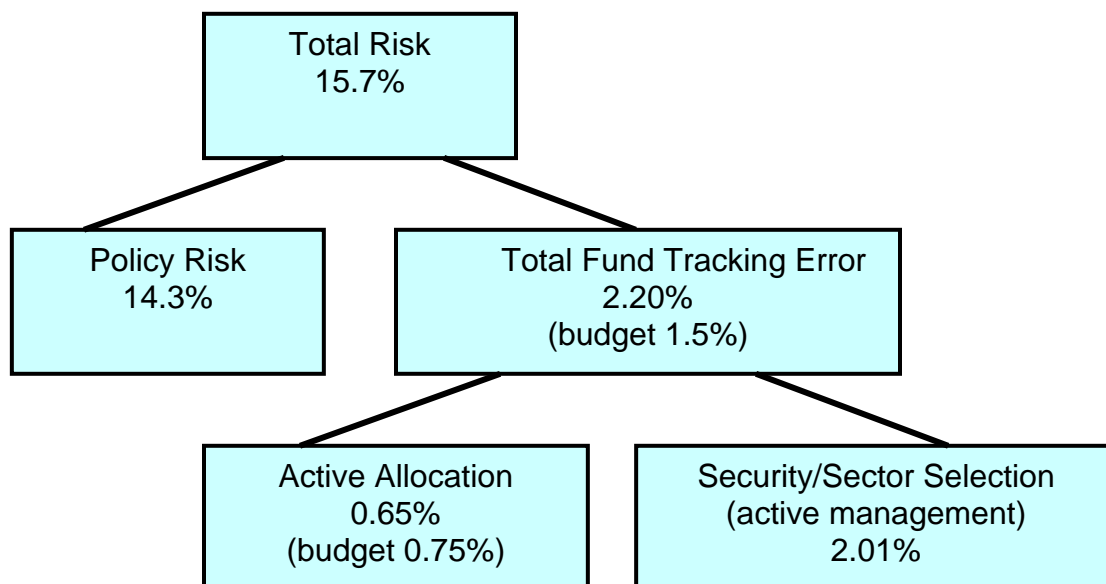
Staff has begun the implementation of an upgraded risk system that has more functionality and enhanced risk attribution. Once the implementation is completed, staff will be able to provide enhanced risk reporting to the Committee and also to the staff of the Investment Strategy Group.

### Risk Measures

#### **Total Fund Volatility (Forecast as of September 30, 2010)**

Attachment 1 presents CalPERS Total Fund forecast total risk as of September 30, 2010.

#### **CalPERS Total Fund Risk**



The above chart shows the projected volatility (standard deviation) for the Total Fund, currently at 15.7%. That total risk amount is composed of two components: policy risk and Total Fund tracking error. Policy risk assumes that the Total Fund is invested in the policy benchmark, and is currently forecast to be 14.3%, thus the actual Fund portfolio currently has a higher projected risk than the benchmark portfolio. Total Fund tracking error is the expected volatility of active returns between the Total Fund and the policy benchmark, currently forecast to be 2.2%. This is above the Total Fund risk budget of 1.5%, and a 26

basis point increase from the prior quarter's Total Fund tracking error of 1.94%. Total Fund tracking error is composed of two components: active allocation and security/sector selection (Attachment 2). Diversification allows the total amount (2.2%) to be less than the sum of the components (0.65% and 2.01%). These components can be used to identify the investment decisions that contribute to Total Fund tracking error. The first is active allocation, or the difference in the actual allocation to each asset class compared to the policy allocation. The active allocation risk budget is 0.75%. The current forecast is just within budget at 0.65%, and has been declining in recent quarters as asset class allocation moves closer to policy. The other component (2.01%), which increased slightly over the previous quarter, is determined by active security selection decisions, as well as sector or strategy bets. These differences can arise from either explicit investment decisions or from benchmark design, comparing actual portfolio holdings and bets to the holdings within the benchmarks.

### Total Fund Volatility Trends

	<b>Policy Limit</b>	<b>Current Sept 2010</b>	<b>Last Qtr June 2010</b>	<b>Last Year Sept 2009</b>	<b>3 Years Ago Sept 2007</b>
<b>Total Risk</b> (Attachment 1)	Not applicable	15.7%	16.1%	19.0%	7.7%
<b>Policy Risk</b>	Not applicable	14.3%	15.2%	17.1%	7.4%
<b>Total Fund Tracking Error</b>	< 1.5%	2.20%	1.94%	2.9%	0.71%
<b>Active Allocation</b>	< .75%	0.65%	0.68%	1.0%	Not available
<b>Security/Sector</b>	Not applicable	2.01%	1.98%	Not available	Not available

Total Fund forecast total risk is slightly lower than last quarter and is due primarily to the less volatile equity market over the last quarter being reflected in the risk forecasting model. The Global Equity policy benchmark was adjusted to include a 5% allocation to the hedge fund benchmark (T Bills + 5%). This caused a reduction in the Total Fund policy benchmark risk, and an increase in the security/sector risk due to hedge fund holdings reflecting more equity risk than T Bill risk. The active asset allocation tracking error decreased slightly and remains within the policy limit. The increase in security/sector risk and a reduction in diversification with active asset allocation caused the Total Fund tracking error to increase this quarter.

### Asset Class Volatility

	<b>Global Equity</b>	<b>Global Fixed Income</b>	<b>Real Estate</b>	<b>AIM</b>	<b>ILAC</b>	<b>Cash</b>	<b>Total Fund</b>
<b>Total Risk</b>	20.4%	7.1%	22.3%	31.0%	18.3%	0.5%	15.7%
<b>Policy Risk</b>	20.3%	6.6%	16.4%	35.4%	3.9%	0.0%	14.3%
<b>Tracking Error</b>	0.6%	3.08%	9.01%	5.63%	15.8%	0.0%	2.20%

Forecast total risk decreased slightly for all asset classes relative to the prior quarter. This is reflective of the recent general decline in market volatility and fairly stable positive market returns since the highs of 2009.

Global Equity has the lowest tracking error of the publicly traded asset classes because it manages more closely to its benchmark. Tracking error was further reduced this quarter with the adjustment of the benchmark to include the hedge fund component. Global Fixed Income moved closer to its policy benchmark and tracking error declined by 50 basis points. Real Estate and AIM also experienced lower tracking error.

### Concentration Measures

The Risk Management Unit monitors Total Fund concentrations across asset classes including country, industry, currency and security asset type weights compared to benchmark weights to identify significant active weights. Concentration measures are reviewed monthly as part of the staff Investment Strategy Group risk report.

### Leverage

All programs are currently within their leverage limits.

	<b>Leverage Limit</b>	<b>Current Leverage</b>
<b>Global Equity</b>	10%	3%
<b>Securities Lending</b>	70%	45%
<b>Real Estate</b>	60%	54%
<b>Infrastructure</b>	65%	41%
<b>Forestland</b>	50%	20%

*(Further detail provided in Attachment 3)*

### **Counterparty Exposure**

The derivative counterparty exposure report (Attachment 4) summarizes net amounts owed to or due from CalPERS investment counterparties. Amounts are aggregated for currency forwards, options, swaps and TBA securities. TBA are forward settled mortgage-backed securities. Amounts owed to CalPERS result in counterparty risk. This risk for most counterparties is managed by counterparty collateral postings. As of October 31, 2010, Bank of America owed CalPERS \$90.5 million and had not posted collateral. CalPERS current International Swaps and Derivatives Association (ISDA) agreement with Bank of America does not require posting of collateral. CalPERS staff is working to revise this ISDA agreement to require collateral posting. The majority of the \$90.5 million has been collected in November as instruments have matured.

### **Liquidity**

In the March 2010 report, staff presented an assessment of the liquidity of the fund. Private holdings were analyzed by examining a pacing model and expected distribution schedules. Staff continues to evaluate refining this approach using statistical estimates of liquidity for the private asset classes.

## **V. STRATEGIC PLAN:**

This item is consistent with Strategic Plan Goal VIII, manage the risk and volatility of assets and liabilities to assure that sufficient funds are available, first, to pay benefits and, second, to minimize and stabilize contributions.

## **VI. RESULTS/COSTS:**

This item provides information to the Committee on the assets and performance of the fund. There are no additional costs associated with this item.

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